

Robadey, Anne

Exploration of a way of expressing generality: Poincaré's 1905 paper on geodesics on convex surfaces. (Exploration d'un mode d'écriture de la généralité: l'article de Poincaré sur les lignes géodésiques des surfaces convexes (1905).) (French) [Zbl 1096.01005](#)
Rev. Hist. Math. 10, No. 2, 257-318 (2004).

Poincaré's "Méthodes nouvelles de la mécanique céleste" (1892–1899) are indeed a precursor of his paper of 1905 "Sur les lignes géodésiques des surfaces convexes". The main theorem there is: On an arbitrary convex surface there is always at least one closed geodesic without any double point, the number of the geodesics is always odd. In 1905 Poincaré presented two proofs, the first one can be traced back to his "Mécanique céleste". In the following chapter Poincaré's proof is interpreted as a paradigm in the French sense, there are given furtherreaching epistemological reflections. In form of appendices considerations are made according to passages with geometrical interpretation, about the principle of analytical continuity, connectedness, continuity, compactness, multiplicity and continuous families.

Reviewer: [Karin Reich \(Wentorf\)](#)

MSC:

[01A55](#) History of mathematics in the 19th century
[01A85](#) Historiography
[53-03](#) History of differential geometry
[01A60](#) History of mathematics in the 20th century

Cited in **1** Document

Keywords:

celestial mechanics; analytical continuity; connectedness; compactness; René Garnier; paradigm (in the French sense)

Biographic references:

[Poincaré, H.](#)

Full Text: [Link](#)